

ABSTRACT

A process for depositing a solid (B) proceeds by targeted thermal
5 decomposition of a gaseous substance (A). The substance (A) has a higher density
than the gaseous product (C) formed during the decomposition. In the process, a
device is used which has a cup (1), the base (1.1) of which is oriented in the
direction of the force of gravity (g) and the opening region (1.2) of which is
oriented in the opposite direction to the force of gravity (g). The cup (1) can be
10 heated directly or indirectly by a heating, temperature-measuring and control unit
(3.3). The device further contains a substance-adding unit (2) with substance
feedline (3.1) and metering unit (3.2), the substance-adding unit (2) being oriented
with the substance outlet (2.1) in the direction of the force of gravity (g) and
projecting into the free volume of the cup (1) between the base (1.1) and opening
15 region (1.2). The device also has a reactor casing (3) and an outlet (3.6) for
gaseous product (C). The process and device are used, for example, to produce
bodies of high-purity polycrystalline silicon in ingot form by controlled thermal
decomposition of monosilane.